Claims

[c1] 1. A ball screw comprising a screw shaft having a thread groove in the outer periphery thereof, a nut having a thread groove in the inner periphery thereof opposed to said screw shaft, and a plurality of balls disposed in a rolling way defined between said thread groove in said screw shaft and said thread groove in said nut, wherein a fitting surface engaging a support member supporting said nut fitted therein is formed on the outer peripheral surface of the nut in the axial middle region of said rolling way and non-fitting surfaces that do not contact said support member are formed on the outer peripheral surface of the nut on the opposite axial sides of said rolling way.

[c2] 2. A ball screw as set forth in Claim 1, wherein said nut has a substantially cylindrical shape, and the nut is smaller in outer diameter at the opposite axial sides formed with said non-fitting surfaces than at the axial middle thereof.

[c3] 3. A ball screw as set forth in Claim 1, wherein the outer peripheral surface of the nut in the opposite axial sides is gradually reduced toward the axial ends of the nut.

[c4] 4. A ball screw as set forth in Claim 1, wherein said non-fitting surfaces extend over a distance of at least one lead axially inward from the opposite axial ends of said rolling way.

[c5] 5. A wheel steering device having a ball screw comprising a screw shaft portion formed as a portion of a steering shaft for steering a wheel and having a thread groove formed therein, a nut having a thread groove in the inner periphery thereof opposed to the screw shaft portion and rotated by a motor, and a plurality of balls disposed in a rolling way defined between said screw shaft portion and said nut, wherein a fitting surface engaging a support member supporting said nut fitted therein is formed on the outer peripheral surface of the nut in the axial middle region of said rolling way and non-fitting surfaces that do not contact said support member are formed on the outer peripheral surface of the nut on the opposite axial sides of said rolling way.

[c6] 6. A wheel steering device as set forth in Claim 5, wherein said nut has a

substantially cylindrical shape, and the nut is smaller in outer diameter at the opposite axial sides formed with said non-fitting surfaces than at the axial middle thereof.

[c7] 7. A wheel steering device as set forth in Claim 5, wherein the outer peripheral surface of the nut in the opposite axial sides is gradually reduced toward the axial ends of the nut.

[c8] 8. A wheel steering device as set forth in Claim 5, wherein said non-fitting surfaces extend over a distance of at least one lead axially inward from the opposite axial ends of said rolling way.

[c9] 9. A wheel steering device as set forth in Claim 5, wherein said nut is fitted, with a tight fit, in a rotating member that rotates said nut by the motor.